



# The Epidemiology of Use of Analgesics for Chronic Pain

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<b>Research grants to Group Health Research Institute for public-domain back pain research unrelated to drug effectiveness or safety.</b>	<b>Johnson and Johnson Inc. Pfizer Inc.</b>
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<b>Unpaid voluntary service relevant to opioid safety.</b>	<b>Board of Directors: Physicians for Responsible Opioid Prescribing. Advisor to the Washington State Agency Medical Directors' Group.</b>

# U.S. Adults Reporting Regular Use of Analgesics for One Month or More (2000)

	<u>Opioid Analgesics</u> <sup>a</sup>	<u>NSAIDs</u> <sup>b</sup>	<u>Acetaminophen</u> <sup>b</sup>
Percent of adult population	2.2 %	3.1 %	3.0 %
Number of adults with regular use in 2000	4.4 million	6.2 million	6.0 million

## Source

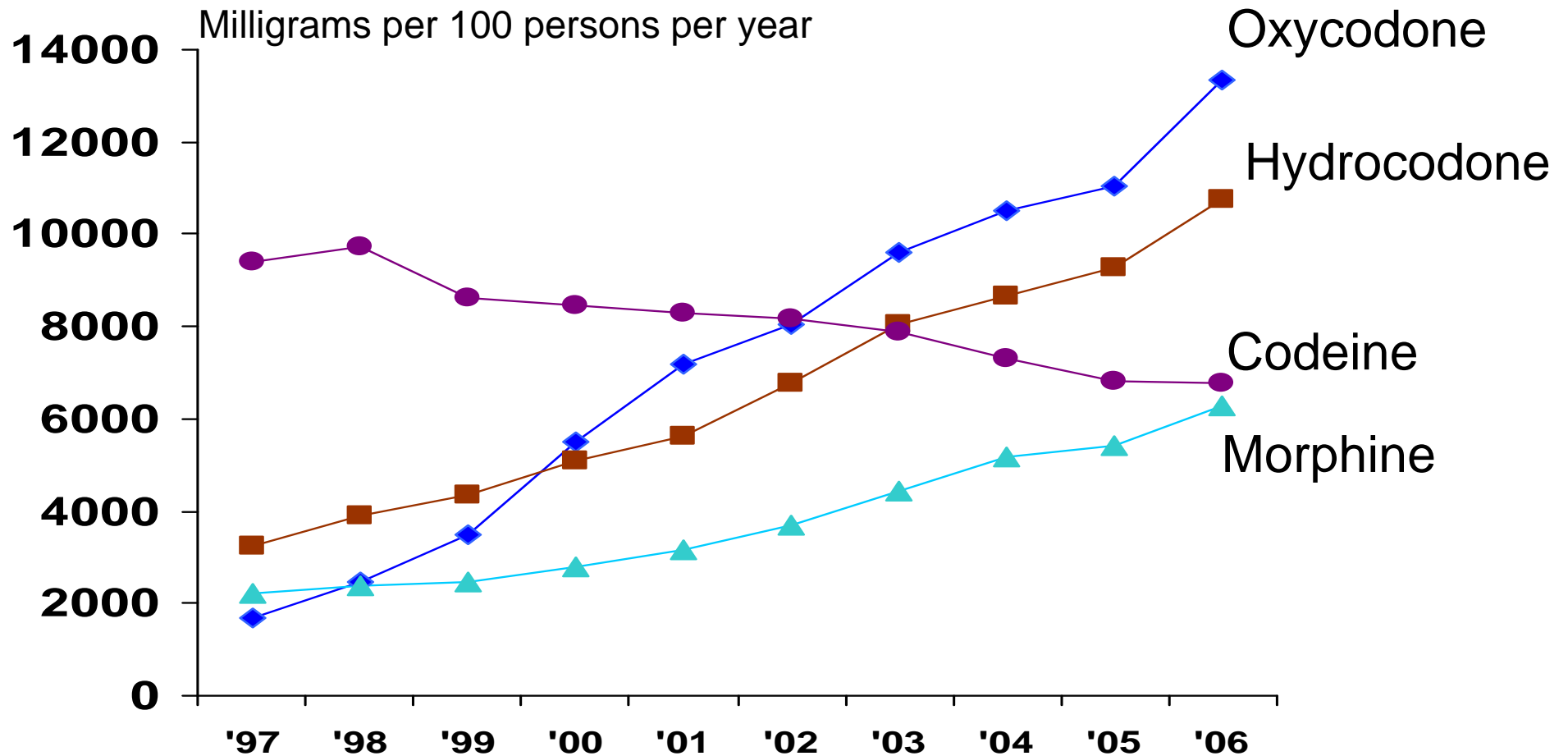
- a. Health Care for Communities Survey (N=7909); Hudson et al. J Pain Symptom Management 2008; 36:280-8.
- b. NHANES (N=4880); Paulose-Ram et al. Pharmacoepidemiology and Drug Safety 2005; 14:257-266.

# Characteristics Associated with Regular Analgesic Use for One Month or More

Gender	Females are more likely to be regular users
Age	Older persons are more likely to be regular users
Education	Persons with more than a high school education tend to be less likely to be regular users
Race/ Ethnicity	Caucasian non-Hispanics tend to be more likely to be regular users

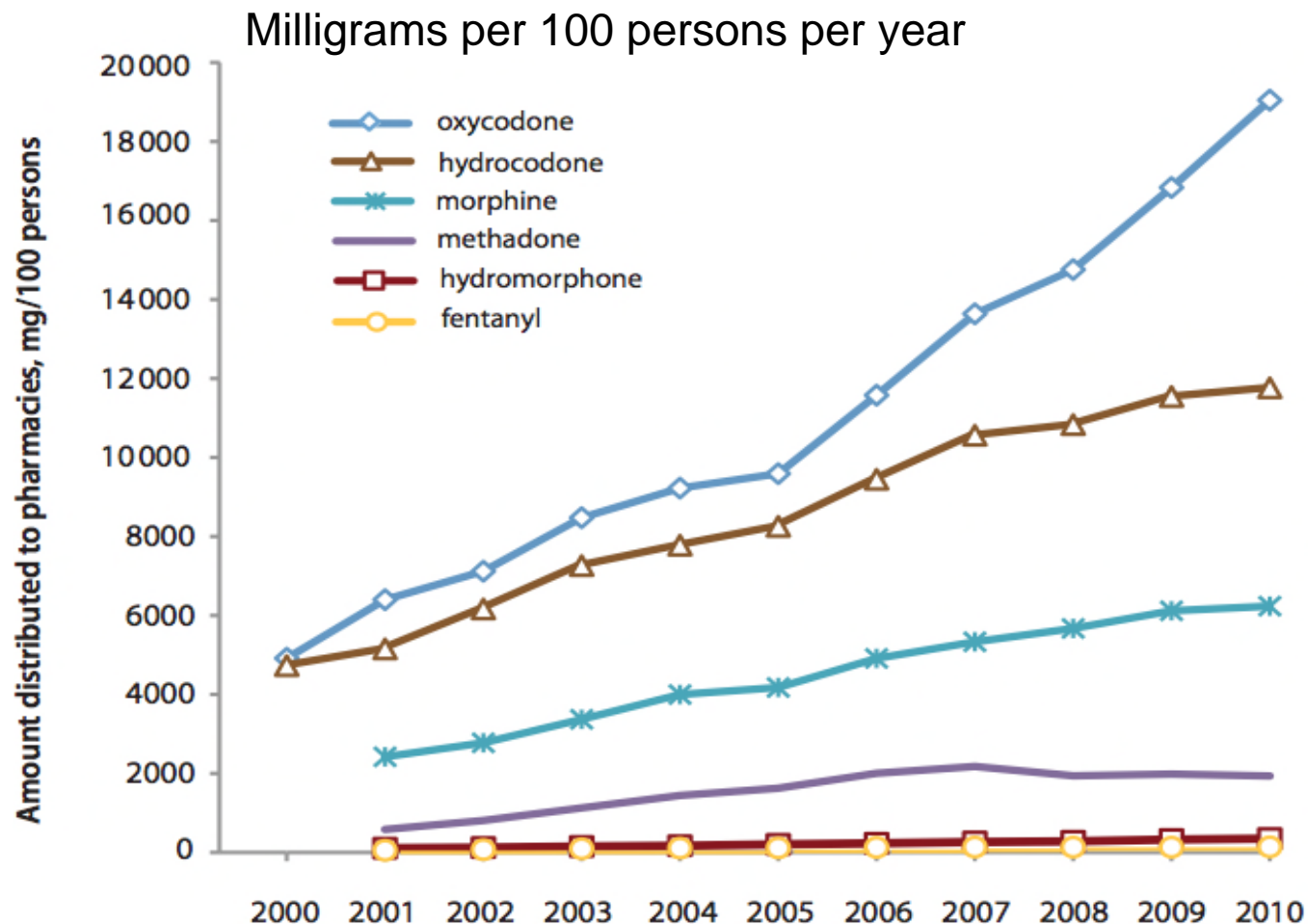
Health Care for Communities Survey (N=7909); Hudson et al. J Pain Symptom Management 2008; 36:280-8.  
NHANES (N=4880); Paulose-Ram et al. Pharmacoepidemiology and Drug Safety 2005; 14:257-266.

# Annual Retail Sales of Prescription Opioids: United States, 1997-2006 (DEA data)



Source: Drug Enforcement Agency, Division of Control  
[http://www.deadiversion.usdoj.gov/arcos/retail\\_drug\\_summary/](http://www.deadiversion.usdoj.gov/arcos/retail_drug_summary/)  
Accessed 4/22/2012

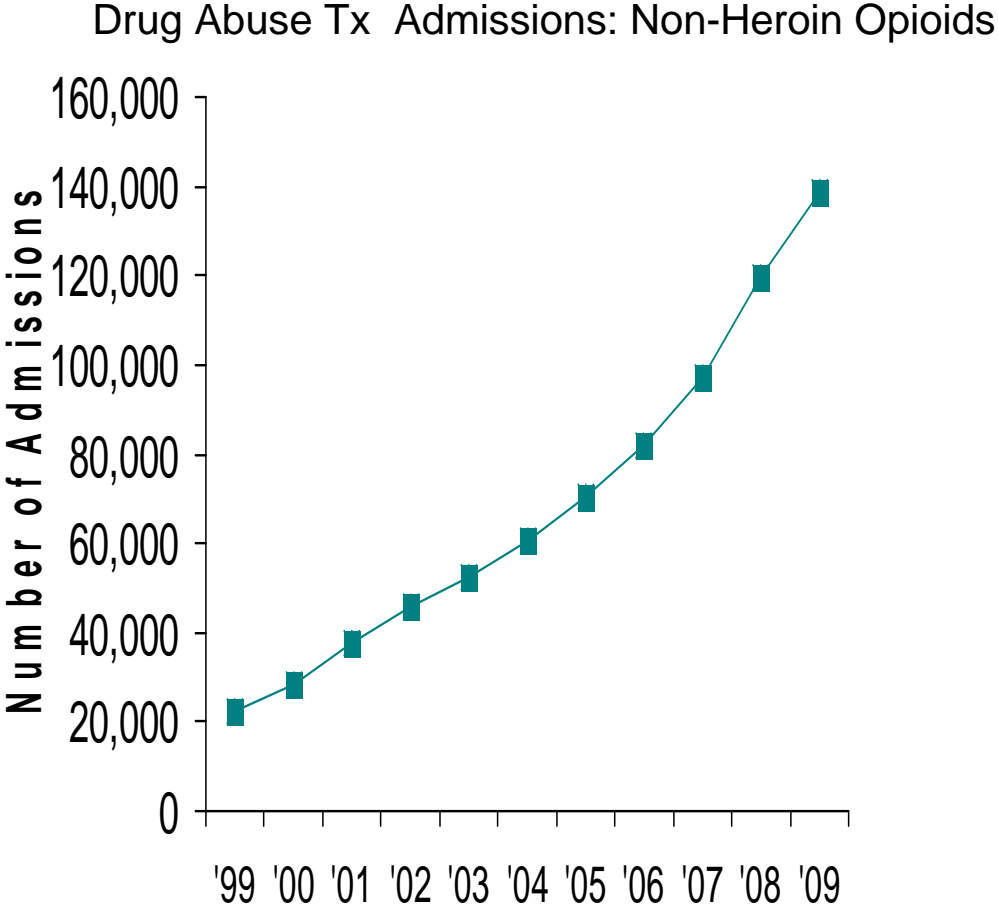
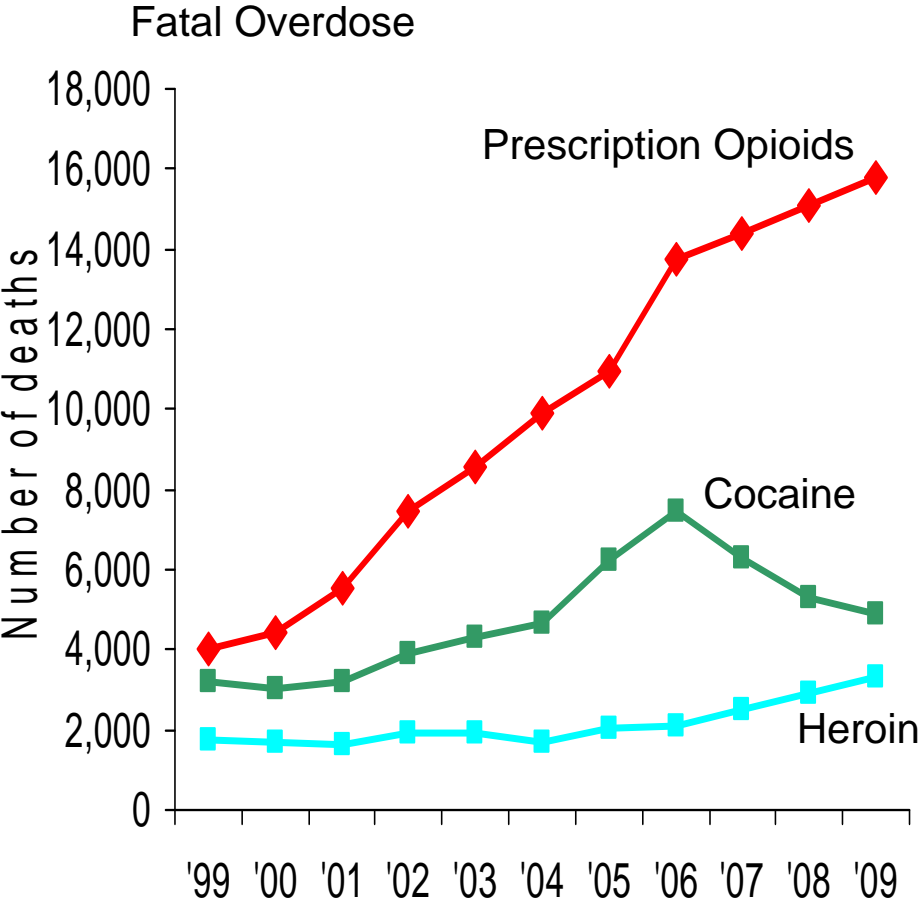
# Distribution of Prescription Opioids to U.S. Pharmacies, 2000-2010 (DEA data)



**Figure 1**  
**Distribution of selected opioids to US pharmacies (in milligrams per 100 persons).** Based on data from the Automation of Reports and Consolidated Orders System, 2000–2010.

Source: Kenan K, Mack K, Paulozzi L. Open Medicine 2012; 6:e41.

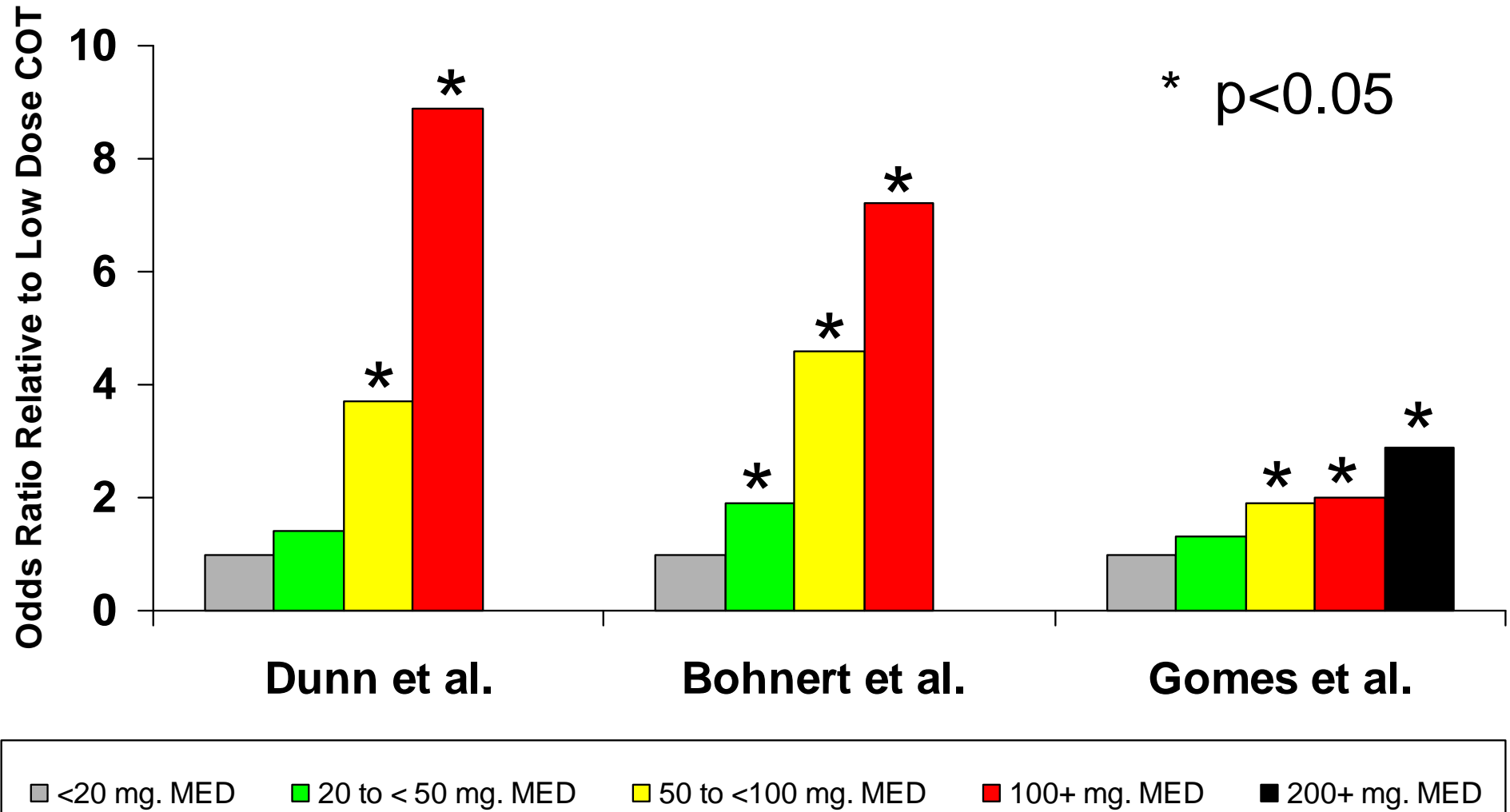
# Trends In Fatal Drug Overdose and Drug Abuse Treatment Admissions for Non-Heroin Opioids



Source: CDC

Source: SAMHSA TEDS data

# Relative Opioid Overdose Risk (Odds Ratio) by Average Daily Dose among COT Patients





# Potential Adverse Effects of Long-term Opioid Use

System	Potential adverse effects
Respiratory	Overdose, Sleep apnea, Community-acquired pneumonia
Gastrointestinal	Bowel obstruction, Chronic constipation
Musculoskeletal	Fractures, Osteoporosis
Reproductive	Hypogonadism, Infertility, Amenorrhea, Sexual dysfunction
Immune system	Immunosuppression, Infection
Cardiovascular	Myocardial infarction
Oral health	Xerostomia (dry mouth), Tooth decay
Neuropsychological	Depression, Anxiety, Apathy Cognitive impairment Hyperalgesia Opioid dependence and addiction
Behavioral	Opioid misuse and abuse Opioid diversion Motor vehicle accidents

# Randomized Trial Evidence for Commonly Used Medications from Recent Meta-Analyses

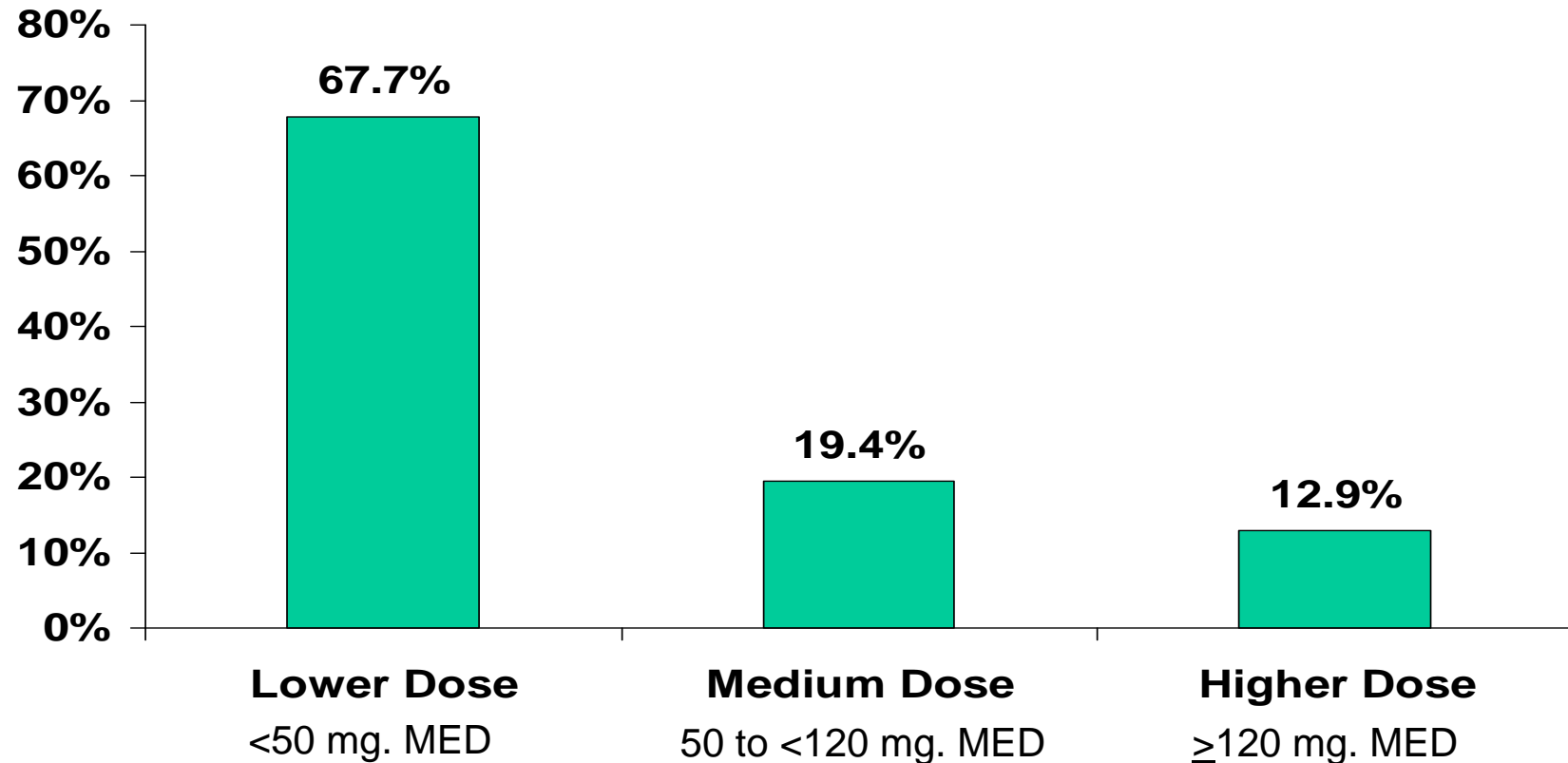
<u>Medication Class</u>	<u>N of Trials</u>	<u>N of Patients</u>	<u>Person-Years (est.)</u>	<u>Number US Adults Using Long-Term</u>
Anti-hypertensives <sup>a</sup>	147	~464,000	~ 1,857,000	48 million
Statins <sup>b</sup>	26	~169,000	~ 753,000	34 million
NSAIDs <sup>c</sup>	31	~116,000	~ 117,000	6 million
Opioids <sup>d</sup>	62	~12,000	~ 1,500	5 million

## Source:

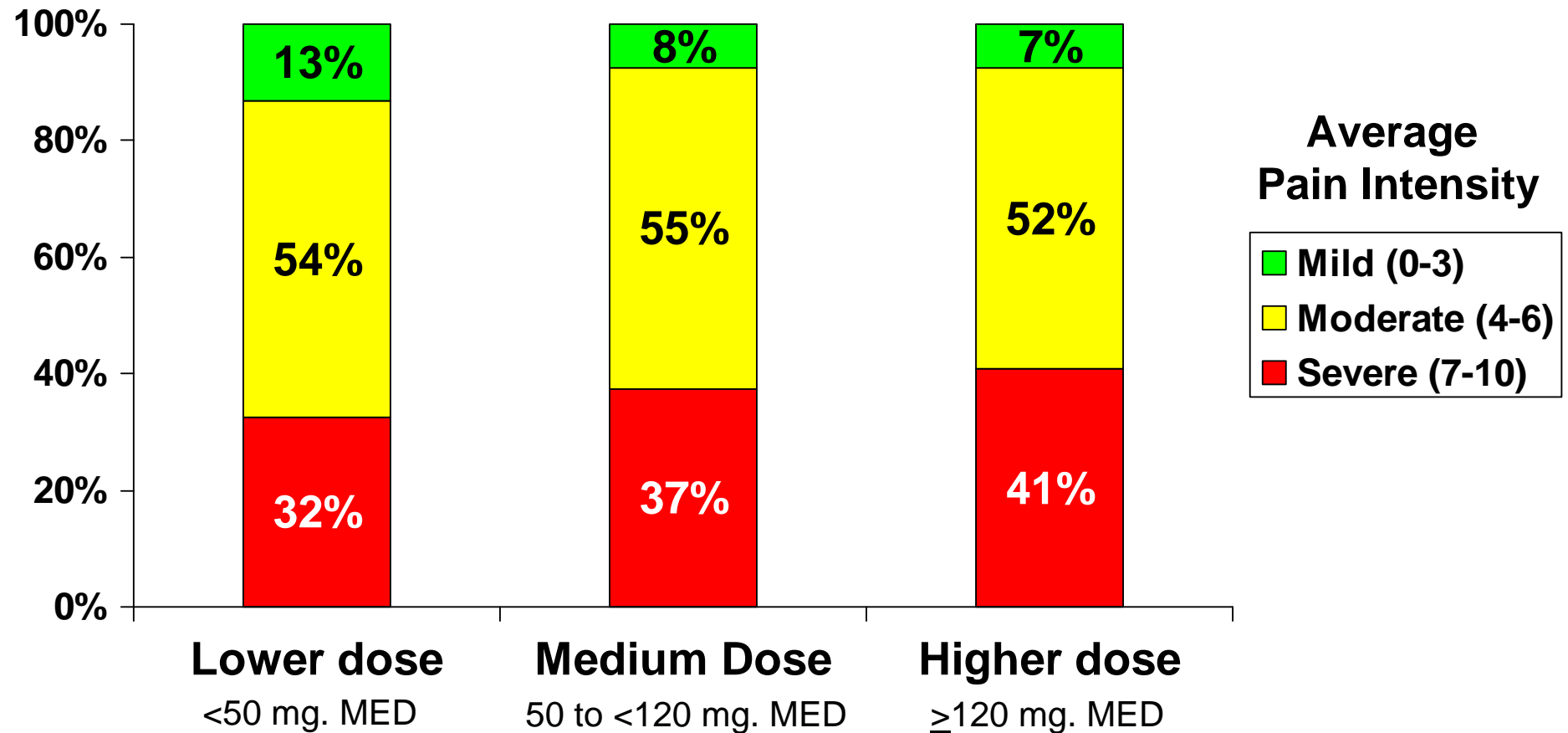
- a. Law et al., BMJ 2009.
- b. CTT Collaboration, Lancet 2010.
- c. Trelle et al., BMJ 2011.
- d. Furlan et al. Pain Res Manage 2011.

# CONSORT Survey of 2119 Chronic Opioid Therapy (COT) Managed in Primary Care

Average daily dose of COT patients in primary care

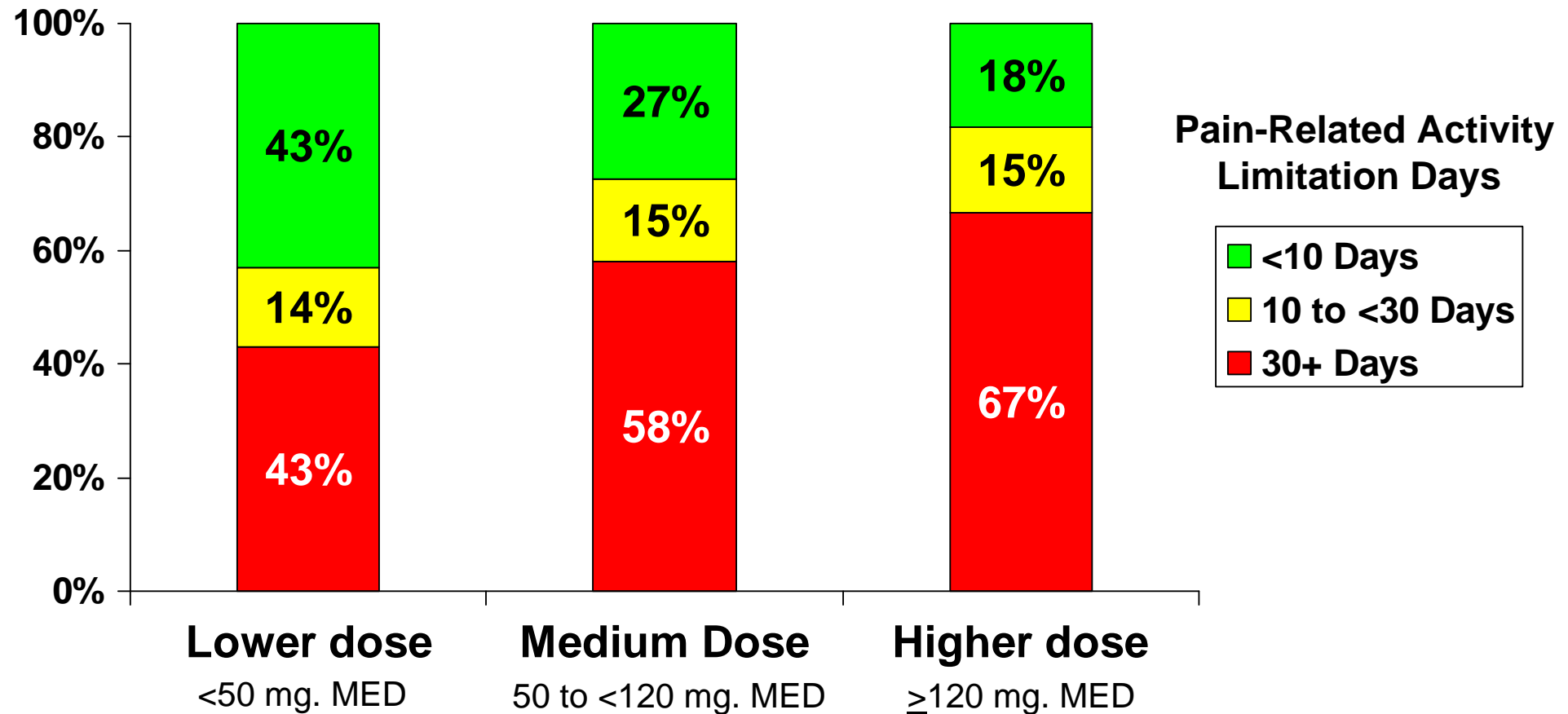


# Variation in Average Pain Intensity: COT Patients by Average Daily Dose



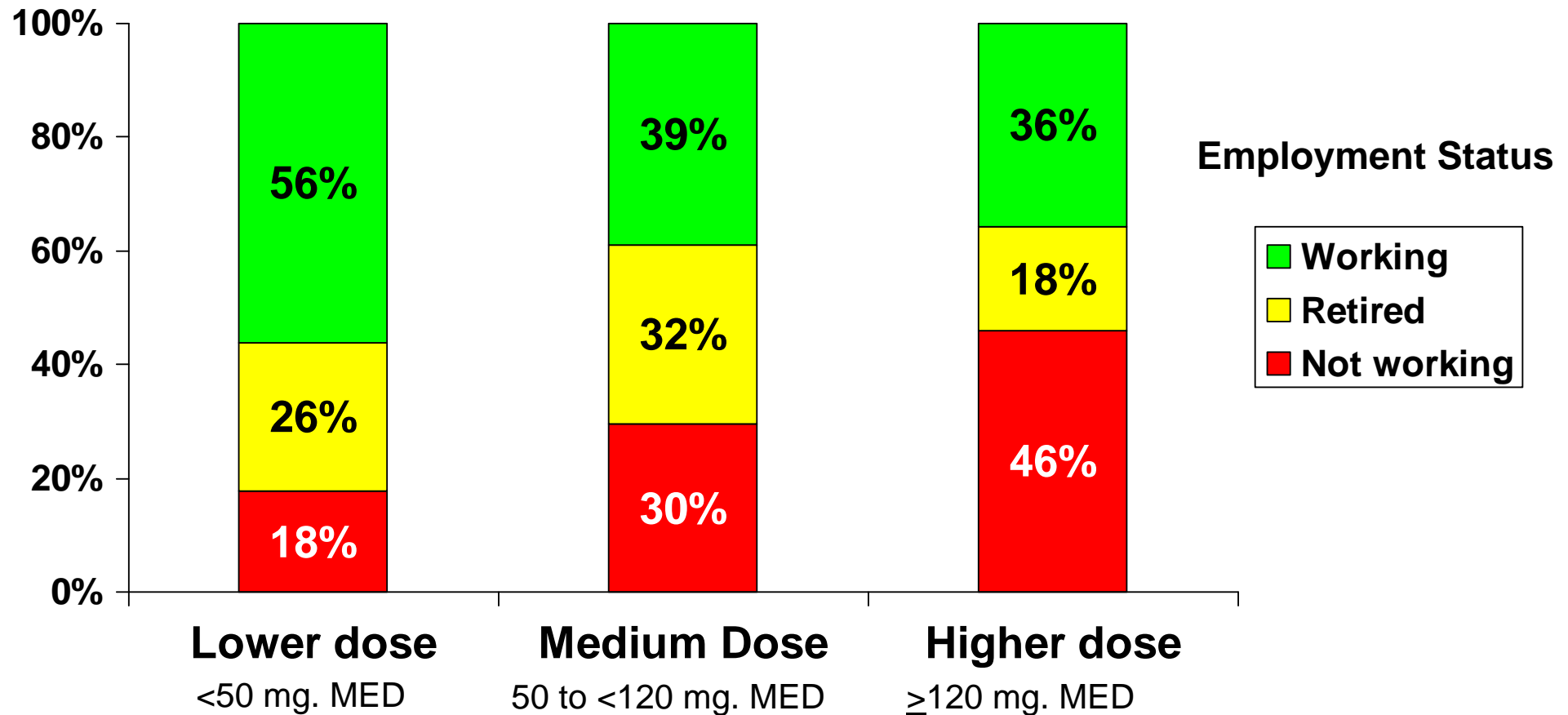
Source: CONSORT Survey (N=2119) Group Health, Seattle WA and Kaiser Permanente N CA

# Activity Limitation Days due to Pain (3 Months) COT Patients By Average Daily Dose



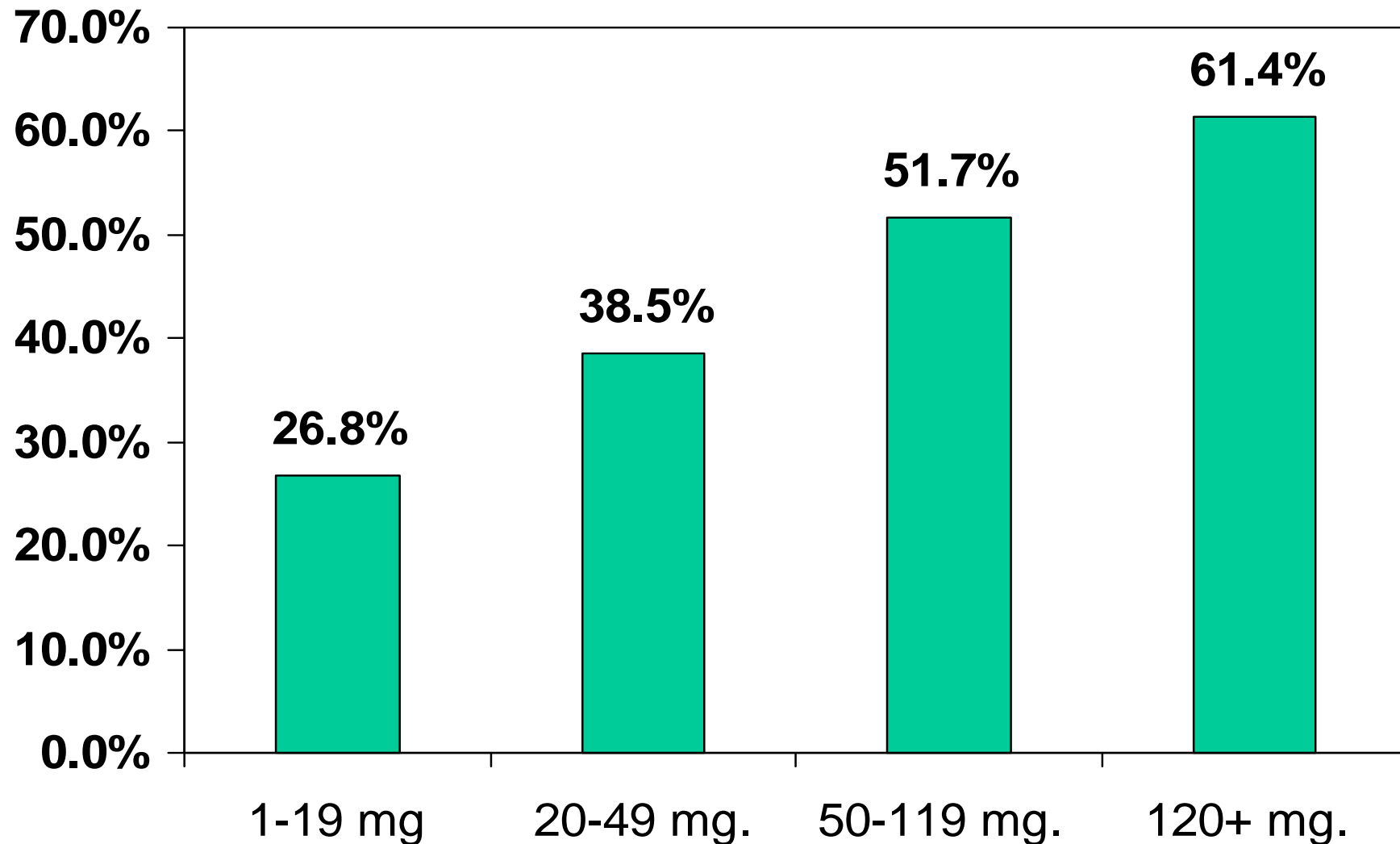
Source: CONSORT Survey (N=2119) Group Health, Seattle WA and Kaiser Permanente N CA

# Employment Status COT Patients by Average Daily Dose



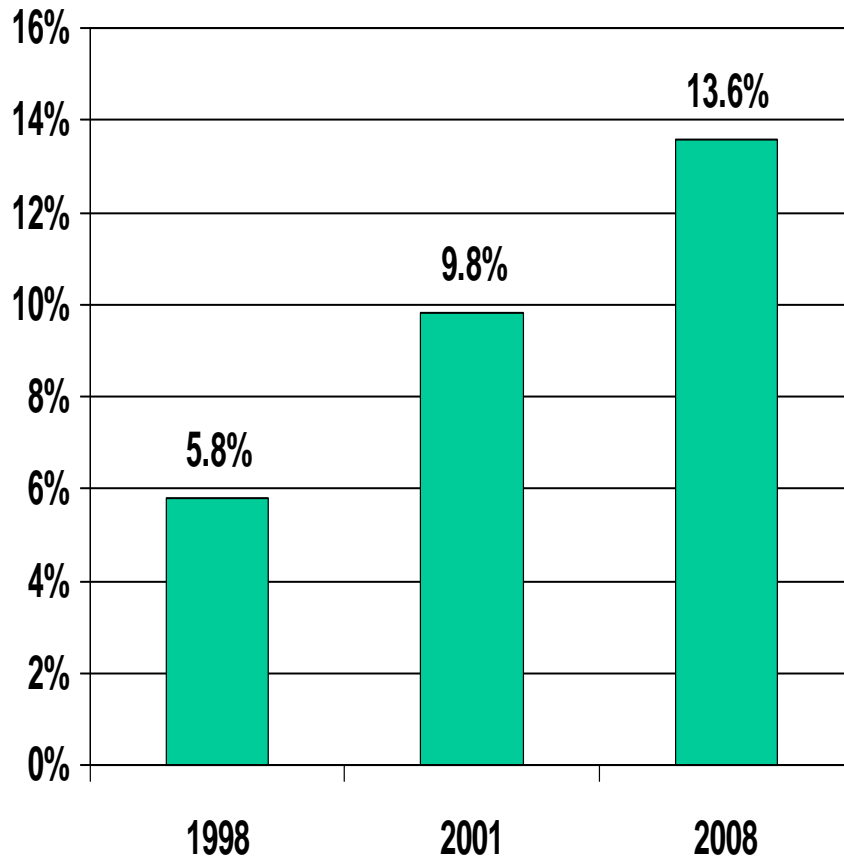
Source: CONSORT Survey (N=2119) Group Health, Seattle WA and Kaiser Permanente N CA

# Percent with Depression (PHQ<sub>≥10</sub>) COT Patients by Average Daily Dose



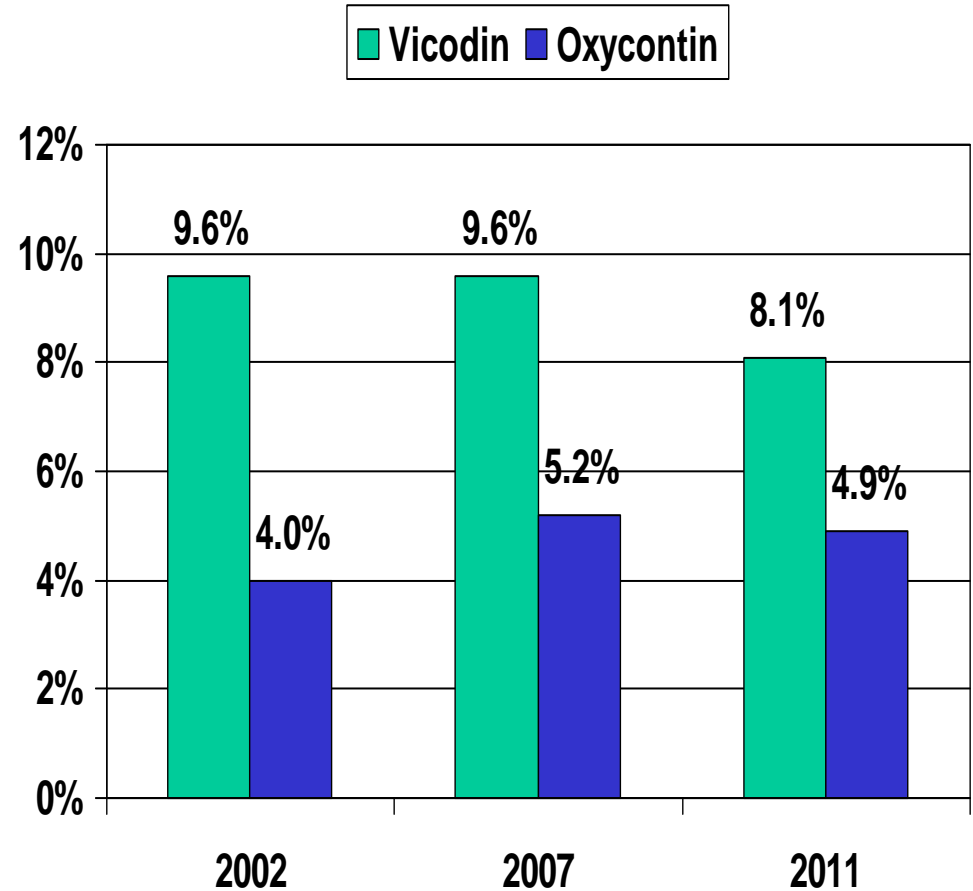
# Percent Using Prescription Opioids Non-Medically

Percent of US population aged 12+ ever using prescription opioids non-medically



Source: National Survey of Drug Use and Health

Percent of US 12th graders using prescription opioids non-medically in the past year



Source: Monitoring the Future

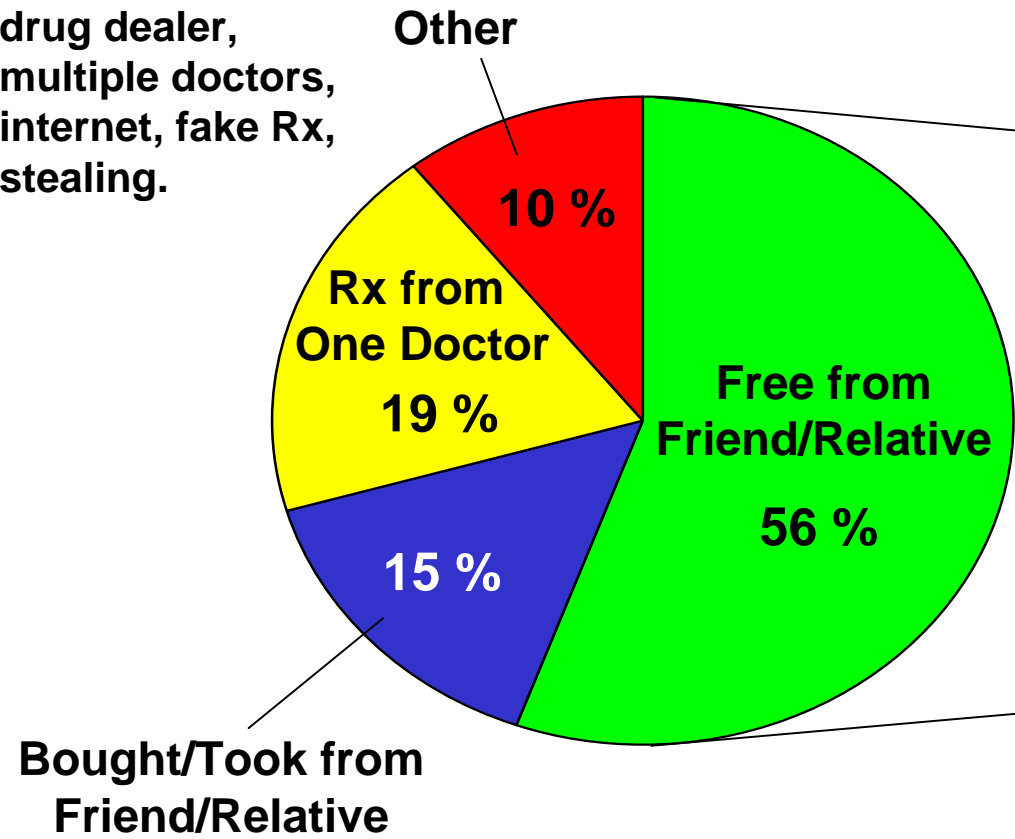


# How Persons Using Prescription Opioids Non-Medically Obtained Them (Most Recent Use)

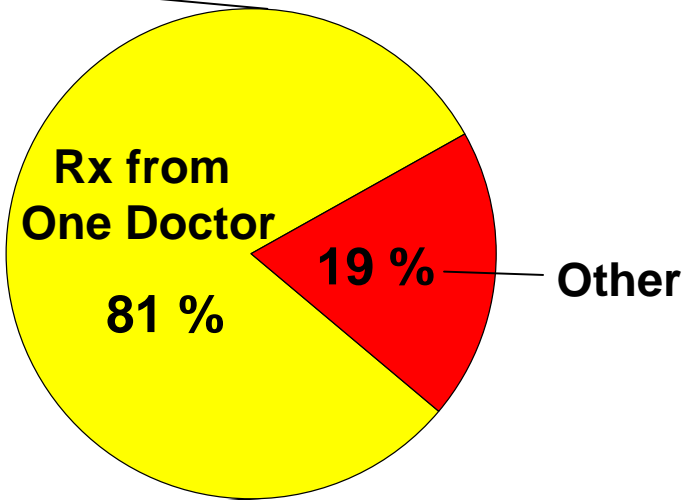


Source: National Survey of Drug Use and Health

Other includes:  
drug dealer,  
multiple doctors,  
internet, fake Rx,  
stealing.

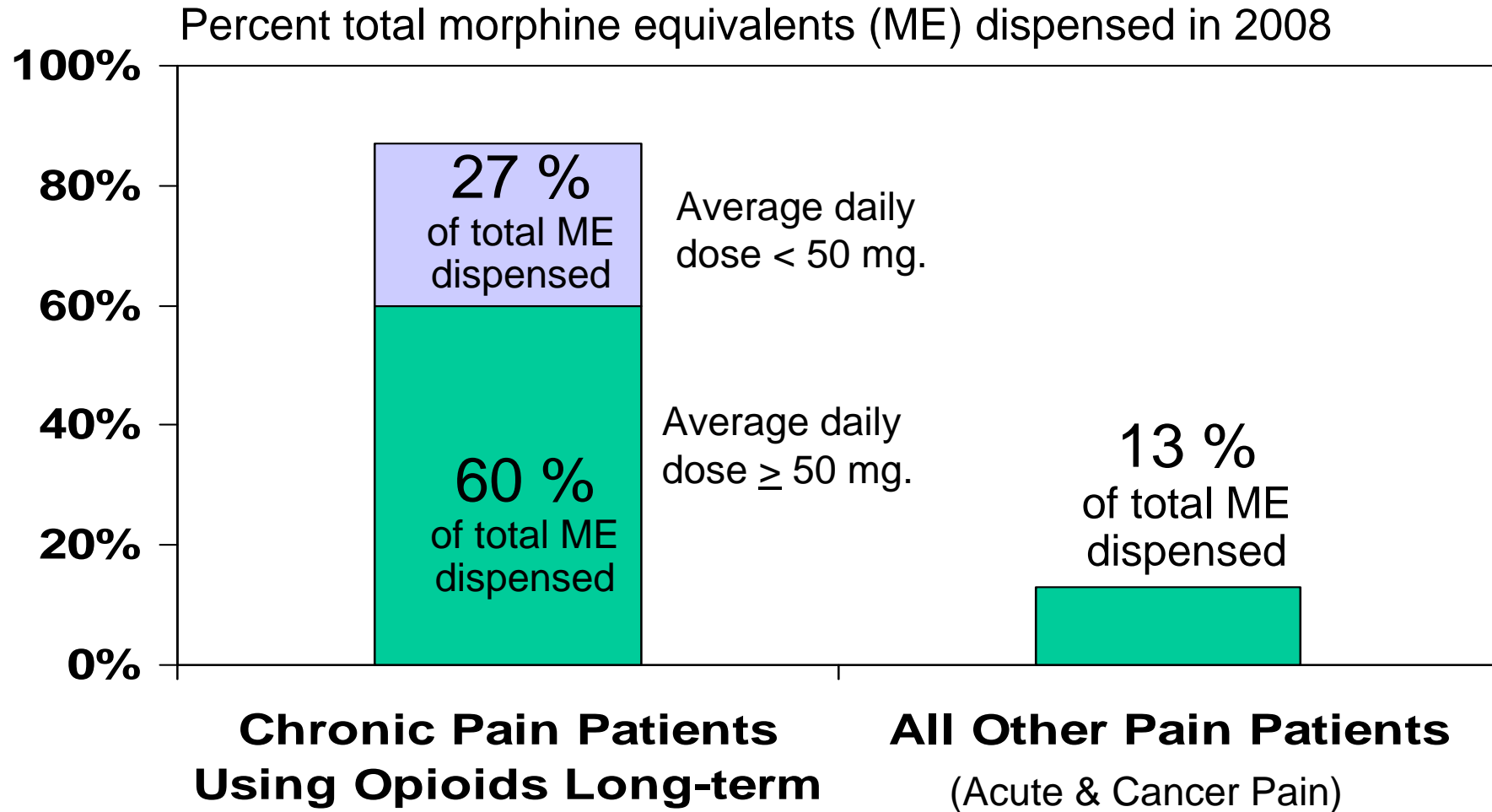


Where the person with non-medical  
use obtained the drug



Where the relative/friend  
obtained the drug

# Morphine Equivalents (ME) by Type of Pain Patient: Where do opioids potentially available for diversion come from?



# Summary

- From 1997-2010, opioid use for chronic non-cancer pain increased markedly.
- Fatal drug overdose involving prescription opioids and drug treatment admissions for non-heroin opioid abuse increased concurrently.
- Pain and function of COT patients is variable, with moderate to severe pain, significant activity limitation and depression common among COT patients.
- Non-medical use of prescription opioids is a problem, with diverted drugs typically obtained from friends or relatives.
- Relative to other widely use drugs, data from randomized trials assessing the long-term effectiveness and safety of Chronic Opioid Therapy is sparse.
- Comparative effectiveness and safety studies are needed to clarify benefits and risks of long-term opioid use for chronic non-cancer pain.